What is claimed is:

1. A system for position a tethered spacecraft from a base spacecraft, the system comprising,

a stand-off extending from the base spacecraft for providing a maximum stand-off distance,

a tethered extending the length of stand-off,

a tether drive motor for moving the tether the length of the stand-off, and

a fastener for coupling the tethered spacecraft to the tether, the tether drive motor operated to move tethered spacecraft to a desired distance from the base spacecraft up to the maximum stand-off distance.

2. The system of claim 1 wherein,

the tether drive motor comprises opposing tether drive motors, and

the stand-off comprises a pulley, the tether extending along the length of the stand-off and around the pulley and again along the length of the stand-off, the opposing tether motors respectively releasing and taking up the tether for extending and retracting the tether spacecraft away from and toward the base spacecraft respectively.

3. The system of claim 1 wherein,

the fastener is a clamp.

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4. The system of claim 1 wherein,

the tether is a metal belt operated as a belt drive.

5. The system of claim 1 wherein the stand-off is a semirigid metallic tape, the system further comprising,

a stand-off reel motor for releasing and taking up the semirigid metallic tape.

6. The system of claim 1 wherein the stand-off is a semirigid metallic tape having a concave surface, the system further comprising,

a stand-off reel motor for releasing and taking up the semirigid metallic tape.

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7. A system for position a tethered spacecraft from a base spacecraft, the system comprising,

a stand-off extending from the base spacecraft for providing a maximum stand-off distance,

a stand-off reel motor coupled to the base spacecraft for taking up and releasing the stand-off to the maximum stand-off distance,

a pulley disposed at a distal end of the stand-off at the maximum stand-off distance,

the tether extending along the length of the stand-off and around the pulley and again along the length of the stand-off,

opposing tether drive motors for taking up and releasing the tether extending between the opposing tether drive motors, and

a clamp for coupling the tethered spacecraft to the tether, the opposing tether drive motor operated to move the tethered spacecraft to a desired distance from the base spacecraft up to the maximum stand-off distance.

8. The system of claim 1 wherein,

the tether is a metal belt operated as a belt drive.

9. The system of claim 1 wherein the stand-off is a semirigid metallic tape, the system further comprising,

a stand-off reel motor for releasing and taking up the semirigid metallic tape.

10. The system of claim 1 wherein the stand-off is a semirigid metallic tape having a concave surface, the system further comprising,

a stand-off reel motor for releasing and taking up the semirigid metallic tape.

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